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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,460	09/25/2003	Jong Dam Kim	2658-0309P	4600
2292	7590	05/27/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			CHAN, EMILY Y	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,460

Applicant(s)

KIM ET AL.

Examiner

Emily Y. Chan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 17-36 is/are pending in the application.
- 4a) Of the above claim(s) 13-16, 30 and 37 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 17-36 is/are allowed.
- 6) ☒ Claim(s) 8, 9, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's election treated as without traverse of claim 1-12 and 17-36 in the reply filed on 3-31-05 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claim 8 is rejected under 35 U.S.C. 102(a) as being anticipated by Tomita US Patent No. 6,630,840.

Tomita ('840) discloses a method of inspecting a substrate device (see Fig. 1, 10) as claimed, the substrate device (10) including signal wirings, drive switches (11) and capacitors (13) formed in a main area (100) of the substrate device (10), and an inspection line (141,142) and an inspection switch (ASW1-ASW4) formed at an exterior of the main area (100), the drive switches (11) being coupled to the capacitors (13), the inspection switch (ASW1-ASW4) being coupled to the inspection line (141,142), the method comprising:

supplying an inspection voltage (143) to the inspection line of the substrate device (see 6, lines 5-10);

charging one of the capacitors (13) with the inspection voltage (143) through the signal wirings (see Col.4, lines 31-36); and

determining if there is a defect in the substrate device (10) by reading the charged voltage of the capacitor (13) (see Col. 6, lines 63-68).

Therefore, Tomita ('840) anticipates the claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita ('840) in view of Suzuki et al US Patent No. 5,377,030.

Tomita ('840) does not disclose the step of comparing the charged voltage of the capacitor (13) with a predetermined reference voltage.

Suzuki et al ('030) disclose a method for testing active matrix liquid crystal device (see Fig. 2) and exclusively teach the steps of comparing the charged voltage of the capacitor (8) with a predetermined reference voltage and determining whether or not there is a defect in one of the signal wirings, a corresponding one of the drive switches, or the charged capacitor based on the comparison result (see Abstract).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the method of comparing the charged voltage of the capacitor with a predetermined reference voltage reference as taught by Suzuki et al ('030) into Tomita ('840)'s method for the expected benefit of manufacturing an active matrix array substrate which enables detection of pixel faults in a

comparatively short time and with great accuracy as disclosed by Suzuki et al ('030) (see Col. 2, lines 50-53).

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita ('840) in view of Hayashi US Patent No. 5,657,139.

Tomita ('840) does not disclose the step of severing, from the substrate device, the inspection line and the inspection switch formed at the exterior of the main area of the substrate device after an inspection of the main area is completed.

Hayashi ('139) discloses an array substrate for liquid crystal device (see Fig. 3) and exclusively teach a short circuit line and a surge-protection switch circuit formed in a removable area outside of the display section (see Abstract).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the step of severing or removing as taught by Hayashi ('139) into Tomita ('840)'s method for the purpose of removing the inspection circuit after inspection being carried out during the manufacturing of the array substrates as disclosed by Hayashi ('139) (see Col. 2, lines 1-2).

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita ('840) in view of Fujikawa et al US Patent No. 5,909,264.

Tomita ('840) does not disclose the step of covering, with a light cut-off layer, the inspection line and the inspection switch formed at the exterior of the main area of the substrate device after an inspection of the main area is completed.

However, covering the electrical device is well known in the art by sputtering method as disclosed by Fujikawa et al ('264). Fujikawa et al ('264) disclose a LCD

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device having a switching element and capacitor (see Fig. 1) and exclusively teach to cover the low electrode area of the LCD device (see Fig. 2 and Col. 33, lines 13-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the step of covering or coating as taught by Fujikawa et al ('264) into Tomita ('840) 's method for the expected benefit of reducing circuit element connection defect as disclosed by Fujikawa et al ('264) (see Col. 10, lines 51-52).

Allowable Subject Matter

6. Claims 1, 7, and 17-36 and are allowed over prior art.

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Independent claims 1, 17 and 29 and dependent claim 10 are allowed because the prior art of the record does not teach or suggest an apparatus for a liquid crystal display device and a method of inspecting a liquid crystal display device comprising a light source to radiate light onto at least one inspection switch device and thereby supplying an inspection voltage from the at least one inspection line to a corresponding one of the drive switches through the signal wirings, so as to charge a corresponding one of the capacitors as shown by Fig 5 1a below.

FIG. 5 is a detailed circuit diagram of a memory array. The diagram shows a grid of access transistors (T1, T2, ..., Tn) and data lines (DL1, DL2, ..., DIm-1, DIm). The array is connected to a word line (Vg-off, Vg-on) and a bit line (Vds(write)). The diagram includes labels for various components: 1a, 401, 402, 403a, 403b, 403c, 403d, 404, 405, and 400. The diagram is labeled FIG. 5.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miyagawa et al US Patent No. 6,864,703 disclose an electrical inspection method comprising inspection line and inspection switches (see Fig. 1).

Yamashita et al US Patent No. 5,506,516 disclose a method of inspecting an active matrix substrate comprising one or more inspection lines (see Abstract).

Matsnaga et al US Patent No. 6,873,174 disclose electronic inspection of an array comprising at least one inspection switch device and read circuit and write circuit.

Nojiri Et al US Publication No. 2004/0174183 disclose an image display device having inspection terminal comprising inspection switches.

Nara et al US Publication No. 2005/0093567 disclose an inspection device for a LCD device comprising an inspection circuit and inspection switches.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Y. Chan whose telephone number is 571-272-1956. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC


VINH NGUYEN
PRIMARY EXAMINER
A. u. 2829
05/26/05